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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/845,985	04/30/2001	Benjamin Chaloner-Gill	N19.12-0047	2942

24113 7590 04/17/2003

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EXAMINER

RUTHKOSKY, MARK

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 04/17/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/845,985

Applicant(s)

CHALONER-GILL ET AL.

Examiner

Mark Ruthkosky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5,7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 2/15/02, 9/3/2002, and 2/3/2003 have been placed in the application file, and the information referred to therein has been considered as to the merits. Application 09/715,935 was not considered published prior art. The application was reviewed, but not considered. The international search report has been reviewed, but cannot be considered as prior art as it is not a published reference.

Drawings

2. The drawings are objected to as noted on the attached PTO-948, Notice of Draftsperson's Patent Drawing Review. Correction is required. The corrected drawings are required in reply to the Office action to avoid abandonment of the application.

Election/Restrictions

3. Applicant's election with traverse of Claims 1-15 and 21 in Paper No. 8 is acknowledged. The traversal is on the ground(s) that claims 16-20 include the limitations of claim 1. There are no arguments with regard to the restriction of claims 22-47, which have been canceled by the applicant. The examiner has rejoined group II with group I, and claims 1-21 have been examined.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the claims, the phrase, “less than about” is indefinite as the limitation, “less than” described a definite maximum value, while the word “about” contradicts that value. In the claims, the phrase, “greater than about” is indefinite as the limitation, “greater than” described a definite minimum value, while the word “about” contradicts that value.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 6 and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Brown et al. (US 5,102,836.)

The instant claims are to a collection of particles comprising a crystalline composition with a phosphate anion, the collection of particles has an average particles size of less than about 1000 nm.

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Brown et al. (US 5,102,836) teaches crystalline powders with particles sizes ranging from 20-50 nm. From this, one would realize that the average particle size is about 30 nm and that both 20 and 50 nm are less than two times the average size. Further, 95% of the particles have a diameter greater than about 40% (about 20 nm) and less than about 160% (about 50 nm) of the average diameter. Thus, the claims are anticipated.

Claims 1-4 and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Matson et al. (US 5,652,192.)

Matson et al. (US 5,652,192) teaches nanometer sized particles having sizes from 1-150 nm and a size distribution of 8-50 nm (see claim 20, for example.) From this, one would realize that the average particle size is about 75 nm and that 150 nm is less than three times the average size. The solid particles include crystallites of iron phosphate (see example 7 and claim 27, for example.) The material will include ferric phosphate based on the Fe^{III} starting material, however, the material may also be ferrous phosphate based on other starting materials provided in the reference with a Fe^{II} oxidation state (see col. 6, lines 15-25.) Compositions with a plurality of metals are noted in the Tables and example 9. Thus, the claims are anticipated.

Claims 1-6, 10, 16 and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamauchi et al. (US 5,538,814.)

Kamauchi et al. (US 5,538,814) teaches a lithium secondary battery with a lithium cobalt phosphate active material with an average particle size of 10 nm to 20 μm (see claims 1-14.) Other metals may be added to the active material (col. 4, lines 10-65.) The material may be crystalline or amorphous (see col. 6, lines 1-20.) Thus, the claims are anticipated.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 6-9 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodenough et al. (US 5,910,382), and further in view of Kamauchi et al. (US 5,538,814.)

Goodenough et al. (US 5,910,382) teaches cathode materials for a lithium secondary battery including LiFePO_4 and $\text{LiFe}_{1-x}\text{Mn}_x\text{PO}_4$, where x is between 0 and 1. The anode is lithium metal or a lithium intercalation material (see col. 1.) The reference is silent to the size of the active material particles. Kamauchi et al. (US 5,538,814) teaches a lithium secondary battery with a lithium cobalt phosphate cathode active material with an average particle size of 10 nm to 20 μm (see col. 5, line 25 to col. 6, line 20 and claims 1-14.) Other metals may be added to the active material including iron and manganese (col. 4, lines 10-65.) The electrode material is pulverized into particles having an average size of 10 nm to 20 μm . It would be obvious to one of ordinary skill in the art at the time the invention was made to prepare the cathode materials of Goodenough et al. (US 5,910,382) to a size of less than 1000 nm as the small size provides and increased surface area and dispersion through the electrode which increases the capacity of the positive electrode as shown by Kamauchi et al. (US 5,538,814.)

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Examiner Correspondence


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1193. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 703-305-0587. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:00.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 703-308-2383.

The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Mark Ruthkosky

Patent Examiner

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4/10/03